

FIG. 16 is a flow chart for the channel probe 590 with state changes in an example of the invention. FIG. 16 begins in step 1600. In step 1602, the channel probe 590 receives a message. In step 1604, the channel probe 590 then processes the message to determine the state that the channel is in. The channel probe 590 determines the channel and the state from the message. The channel probe 590 then determines whether a state change has occurred in step 1606. If a state change has not occurred, the channel probe proceeds to step 1608.

In step 1608, the channel probe 590 determines whether the state is polling or dedicated. If the state is not polling or dedicated, the channel probe 590 returns to step 1602. If the state is polling or dedicated, the channel probe 590 monitors the number of bytes transmitted during the state in step 1610. In step 1612, the channel probe 590 monitors the number of credits issued during the state before returning to step 1602.

If a state change has occurred, the channel probe 590 determines the time in the previous state in step 1614. The channel probe 590 then stores the channel information such as the state change, number of bytes transmitted during the state, number of credits during the state, and time in state in the memory 1430 in step 1616. The channel probe 590 then determines the start time of the new state in step 1618. The channel probe 590 then returns to step 1608.

Sector Probe Management -- FIGS. 17-19

FIGS. 17-19 disclose a sector probe management system that polls the sector probes in the customer areas for performance information. The sector probe management system then stores the performance information in a memory in the sector probe management system so other systems, such as performance management systems or fault management systems, can access the performance information.

FIG. 17 is a block diagram that illustrates a market hub 400 connected to customer premises' for sector probe management in an example of the invention.

The additional components of the market hub 400 and the customer premises 600 as shown in FIGS. 4 and 6 are not shown in FIG. 17 for the sake of clarity in order to focus on the components related to the operation of the sector probe management. Also, there are numerous customer premises' and sector probes in the broadband wireless system 100 that are not shown in FIG. 17 for the sake of clarity. The market hub 400 includes the market performance management system 430 and a customer management database system 1710. The market performance management system 430 includes a sector probe management system 1700 and the market database system 435. Customer premises 1720 includes a sector probe 1725. The customer premises 600 includes the sector probe 695. Customer premises 1730 includes a sector probe 1735. The market hub 400 is connected to the customer premises 1720, the customer premises 600, and the customer premises 1730.

The sector probe management system 1700 is any system configured to (1) generate an instruction to request performance information of the broadband wireless system 100 from a communication device in a customer area, (2) transmit the instruction to the communication device, (3) receive the performance information from the communication device, and (4) store the performance information in memory. The performance information is information that describes how a communication network is operating. Some examples of the performance information are FEC blocks, FEC correctable percentage, SNR, number of bytes transmitted, activity ratios, and bits per second. In one embodiment, the communication device is the sector probe 695 and the memory is the market database system 435.

FIG. 18 is a flow chart for the sector probe management system 1700 in an example of the invention. FIG. 18 begins in step 1800. In step 1802, the sector probe management system 1700 generates an instruction to request performance information of the broadband wireless system 100 from a communication device in a customer area. In step 1804, the sector probe management system 1700 transmits the instruction to the communication device. In step 1806, the sector probe management system 1700 receives the

performance information from the communication device. In step 1808, the sector probe management system 1700 stores the performance information in memory. FIG. 18 ends in step 1810.

FIG. 19 discloses one embodiment of the invention, but the invention is not restricted to the configuration provided below. Those skilled in the art will appreciate numerous variations in a sector probe management system configuration and operation that are within the scope of the invention. Those skilled in the art will also appreciate how the principles illustrated in this example can be used in other examples of the invention.

FIG. 19 is a flow chart for the sector probe management system 1700 to control active sector probes in an example of the invention. FIG. 19 begins in step 1900. In step 1902, the sector probe management system 1700 determines which sector probes are active for polling in the broadband wireless system 100. In this embodiment, the sector probe management system 1700 polls the active sector probes for performance information. In another embodiment, the sector probe management system 1700 retrieves the performance information from the sector probes on a request basis. For example, a user requests the performance information from the sector probe management system 1700 for real-time or near-real-time information.

In step 1904, the sector probe management system 1700 generates instructions to request performance information of the broadband wireless system 100 from the active sector probes. The sector probe management system 1700 transmits the instructions to the active sector probes in step 1906. In step 1908, the sector probe management system 1700 receives the performance information from the active sector probes. The sector probe management system 1700 stores the performance information in the market database system 435 in step 1910. FIG. 19 ends in step 1912.

Channel Probe Management -- FIGS. 20-21

FIGS. 20-21 disclose a channel probe management system that polls the channel probes for channel information. The channel probe management system